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Palms in the Landscape: Culture Basics

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There are few groups of landscape plants that offer the beauty and charisma of palms. Whether you are new and starting your first garden or an experienced collector just “adding one more species,” there are basic data that will make your planting much more successful.

Getting the Right Property

If you have not yet purchased or leased your home, search out the perfect location for growing. Find the warmest area in your locality and make sure you have good sun exposure. If you are in a cold area, find property on a ridge or hill to promote cold drainage. Ask prospective neighbors if it freezes. Look for successful growth of palms in that neighborhood. Investigate water quality, soil quality, and drainage as well. And finally, pick a property large enough to support your present and future palm needs.

Before You Begin Your Garden

It is advisable to have a plan before you put in your first palm. Determine planting density desired, pathway location, need for retainer walls and improvements, and work areas. Dig a few holes just for the purpose of examining the quality of your soil and for checking drainage. If your soil is of poor quality, import new soil or begin amending soil before planting. If drainage is bad, amend your soil with sand and install leach lines in over-moist areas. If possible, install your irrigation system prior to planting. Also, create your own home “nursery” and gradually accumulate species that you wish to plant eventually.

Haphazard planting gives haphazard results. Plant species in the appropriate locations. Palms are unusual in that you can predict the plant's eventual size and probable rate of growth. A large clumping palm will obscure smaller species planted behind it. A *Phoenix canariensis* right next to the house will most likely need re-

moving later. A spiny species next to a walkway would be dangerous. By knowing your palms and what they will become, you can avoid these problems. Remember to plant sun-loving species in locations that will not be shaded as surrounding plants grow.

Plant fast-growing palms to establish shade and the resultant canopy for other palms. Rapid growing species such as *Caryota*, *Syagrus*, and *Archontophoenix* will quickly grow overhead and produce a canopy, which is aesthetically pleasing because it gives a third dimension of height to your garden. More importantly, it provides a protected environment below that enables you to introduce shade-loving species. A well formed canopy may be the single most important thing you can do while creating a palm garden. The areas under the canopy are warmer in the winter, have less wind, hold more humidity, and create a “rain forest” appeal. Many genera, such as *Geonoma*, *Chamaedorea* (Fig. 1), and understory *Dypsis* species, cannot survive direct sun, especially at a young age.

Acclimatizing Your Palms

If your palm is from a greenhouse, shade structure, or imported from a more tropical area, acclimatize it before planting. Such plants must cope with lower outside humidity, cooler temperatures, and more intense sun. Any of these changes can be a problem for your palm, even if it is sun-loving. Acclimatization from the greenhouse into full sun should be done gradually over a two to three month period (or more) for most species and preferably between spring and fall. Start in shade. Gradually increase the exposure to sun every two to three weeks. If you notice any burn (faded, then brown areas) on the sun exposed foliage, return the palm to more shade. An alternative method is to plant the palm in filtered light and then allow it to grow into the sun.



1. A shade cloth canopy installed to protect a collection of *Chamaedorea* species growing in the ground at the Orto Botanico, Naples, Italy. (Photo S. Zona)

The Best Size to Plant

In most climates outside the tropics, a plant with some size has a better chance of surviving, especially if it is a species that is marginal in one's locality. A general rule might be "the bigger the better," but budget limitations may apply. I would recommend planting acclimatized plants of at least one-half meter in height. Larger plants seem to tolerate better the shock associated with transplanting. Very durable species will most likely survive regardless of the size of the palm. It takes a palm about 12 months after planting to start looking good. During its first six months, existing leaves may yellow or age. "Post Greenhouse Shrink" (subsequent leaves being shorter than old leaves) can be seen in almost any size of plant and results from loss of the optimal greenhouse environment. This is also seen with plants taken out of shade structures. Plants will reestablish their leaf length with time as they adjust to their new environment.

When to Plant

Outside of the tropics, the optimal time to plant is after the risk of cold weather has passed. If you live in a very mild climate, you can probably plant anytime from late winter to late fall. If you choose to plant just before cold weather arrives, make sure that you are using fully acclimatized specimens, preferably with at least one full year of outside culture prior to planting.

Drainage

Almost all species of palms prefer good drainage. Heavy subsoil or clay may have very poor drainage. An experimental half meter deep hole dug in a representative area of your garden will teach you a lot about your soil, water patterns, and drainage. First, you will learn the depth of your topsoil and the difficulty of digging in your soil. Second, you can have the soil tested by a soil lab for pH and nutritional status. Third, you will discover the effectiveness of your watering and can make any adjustments as needed. Fi-



2. Palms staked for stability at Fairchild Tropical Garden, Miami, Florida. Note that the stakes are not nailed directly to the trunks. (Photo S. Zona)

nally, and most important, you can test the drainage. After normal rainfall or watering, dig a hole a half meter deep and wide. Quickly fill this hole with water and time how rapidly the water totally disappears. With excellent drainage the water will be gone within one hour. Good drainage would take several hours. Adequate drainage would take 6–12 hours. With poor drainage, the water remains for 24 hours or more.

If your garden falls into the “poor drainage” category, you can predict that some species will have problems unless you plan ahead. You may have found that, in digging your hole, you came to a clay or heavy substratum. It may be this layer that is holding stagnant water below the ground. If this layer isn’t too thick, you can utilize heavy metal bars or a jackhammer to break up the layer prior to planting and thus promote drainage. An alternative technique is digging underground diversion channels from hole to hole using gravity to divert water downward. One can also mound plants (with or without constructed walls) above the water table.

If your problem is heavy clay topsoil causing drainage problems, consider repetitive amendments of sand and coarse organic material. Over the years this will promote better surface drainage.

Planting on slopes presents a drainage problem of sorts. Slopes discourage water from getting to the palm’s roots. Solutions include slow emission drip irrigation, adequate water wells, or mulching to slow the downward movement of applied water.

Soil

Soil is of paramount importance in your garden’s success. Ideal soil pH for palms is about 6.0 to 6.5. Alkaline water will slowly raise the pH of soil. Test kits can be purchased to check the pH. If you are importing soil for your garden, buy the highest quality soil blend available.

Any prepared soil purchased for the garden, especially if used for backfill, will have to be compacted prior to planting. Freshly prepared soil mixes have air mixed into the blend. Also,

the soil's organic material will decompose over the years. Your garden's soil surface above the newly imported soil will actually begin to sink with time. Therefore, compact the soil heavily with professional tampers and heavy watering and allow time for the soil to settle. If deep layers of imported new soil are being used, one may wish to actually build up the garden installation level above the final desired level. It would not be unusual for a rich soil blend to compact 20% over five years.

Planting a Palm

When planting into native garden soil, most growers recommend amending the soil used to pack in around the root ball. Dig the hole at least twice the size of the palm's container. To the removed soil, add organic material and possibly sand to encourage new root growth into the soil. An acceptable ratio would be two parts organic material, three parts native soil, and one part sand if needed. Place your mix into the dug hole and compact it. Put the palm still in its container into the hole and check the planting height. The base of the trunk in the pot should match the garden soil level. Remove the palm from its container and gently set the root ball into the hole. Add soil mix around the rootball half way up the hole, compact the soil, and water. Finish filling the hole, compact again, top off the soil, and water very thoroughly. Make sure enough water has been given to penetrate the rootball and new mix all the way to the bottom of the hole. It takes a surprising amount of water on the first watering. It may be best to let the garden hose run slowly for 20 minutes, gradually moving it around to each side of the plant. Also, if you have planted in a windy area or the plant seems unstable, stabilize the palm with one or more stakes, being careful not to attach the stake directly to the stem with nails as diseases can enter through nail wounds (Fig. 2). Stakes can be removed when the palm demonstrates stability on its own.

Antidesiccant sprays applied to the foliage or tying leaves into a bundle for weeks or months can help prevent desiccation prior to the establishment of new roots. I recommend the use of commercial antidesiccant (antitranspirant) sprays. These sprays literally coat the leaves with a thin water soluble layer of polymer material that prevents moisture loss through the leaves.

After planting, anticipate watering again in a

day or two. Spray down the leaves occasionally. New soil preparations may repel water and need frequent initial watering. In the first several months, never allow the soil to dry out completely; however, avoid overwatering as this may discourage root growth or even cause rot. Repeat antidesiccant sprayings can be used. Tied up crowns should be released within one or two months. A small temporary shade structure utilizing shade cloth and stilts can be constructed above a planted palm to protect it from direct sun if no pre-acclimatization was done. Immediate fertilization is not needed on newly planted palms. In six to eight weeks begin a regular fertilization program.

Watering

Two factors are involved in watering. First is the volume of water given. Most growers like heavy watering at lesser intervals. To know if you are giving an adequate volume, dig an exploratory hole and confirm that the water is penetrating deeply into the soil. The other factor, watering frequency, depends on ambient temperature and humidity, drainage patterns, soil type, volume delivered, and plant needs. Watering frequency is increased with higher temperatures, lower humidity, quicker drainage, looser soil types, smaller volumes of delivered water, and water-loving species. There is no recommended frequency for watering. You must inspect the soil. Most growers will water when the superficial soil is becoming somewhat dry to the touch.

Water delivery techniques vary from hand watering to sophisticated computer driven sprinkler systems. Computerized systems do save time and can conserve water by eliminating the need to turn off valves. Drip systems can be effective, especially on slopes. Broadcasting type sprinklers are the most commonly used but are the least efficient and often leave dry areas.

Another specific watering problem is when you get water "theft" from older, larger adjacent plants or competing lawns and ground covers. These plants will actually steal available water from your new palm. This is particularly important when you plant a palm among larger trees. There is little you can do for this besides giving extra amounts of water and fertilizer to needed areas. Cut lawns and groundcovers back several feet away from your planted palms.

Adding an inch or two of organic mulch directly on top of the garden surface will enrich

and add acidity to the soil, decrease water requirements, help with weed control, and make the garden look nicer. It will also break down and gradually improve drainage. Organic material such as aged fir, redwood or pine shavings, shredded leaves, or aged "stable litter" (shavings with horse manure) work well for this. Nitrogen-based fertilizer may be added to the mulch to offset nitrogen consumption that accompanies the decay of the mulch. Avoid mulching with leaves from trees such as *Eucalyptus* that give off toxic chemicals. Before mulching is a good time to apply fertilizer to the soil. Do not mulch over the crown of a small palm.

Fertilizer

Correct application of fertilizer gives nutrition to the plant to optimize growth. Incorrect usage of fertilizers kills or weakens the plant. Always read and follow the manufacturer's directions. Also, never fertilize garden soil that is dry. Fertilizer on dry plants can cause chemical burn. Avoid throwing fertilizer into the crown of a small plant. Distribute the material around the base of the palm, roughly matching the shadow on the ground from the overhead leaves. It may be best to work the fertilizer into the top few inches of the soil.

There are organic and chemical fertilizers. Organic materials such as blood meal, processed sea kelp, fish emulsion or various manure preparations are usually available. Organic fertilizers offer some microelements not available in standard fertilizers. The undesirable odor of these fertilizers can be lessened if they are placed under your layer of mulch. Application rates vary, but three times a year is usual.

Manufactured chemical fertilizers are either quick release, slow release, or somewhere in between. Quick release preparations are available to the plant after several waterings. Consequently, they carry more chance of plant burn, whereas the slow release preparations help prevent burn. The latter are either 90-, 180-, or 360-day release. They have a polymer barrier around the fertilizer pellet to slow its release. Both types of fertilizers come as granules and are quite easy to spread in the garden.

An ideal fertilizer would be one with the N:P:K ratio of 18-6-18 (or similar ratio) with added microelements such as iron, magnesium, and manganese. With any fertilizer, follow the manufacturer's direction on application rates and do not overdo it.

Special Problems

There are as many special problems in growing palms as there are growers and localities. A very common and yet avoidable problem (through planning) is what to do when a sun-loving palm gets shaded out by adjacent plants growing above it. The only solution is to get sun to the palm by overhead pruning of other plants or transplant the palm to a sunny location. Another frequent problem is protecting a palm from cold exposure. Establishing an overhead canopy, planting near the house, and using antitranspirant sprays may all give palms some cold protection. Continually running overhead irrigation has been used to prevent plant demise during brief freezes. Dubious methods of cold protection include ground heating cables, temporary overhead plastic roofs, smudge pots, and warm water baths for the plant's roots during the coldest periods.

Damage from sea water spray is another problem. It has been observed in southern California that *Ravenea rivularis* does very poorly within a few blocks of the ocean. *Howea forsteriana*, *Brahea edulis*, *Cocos nucifera*, *Washingtonia robusta* (not *W. filifera*) and *Rhopalostylis sapida* all do well in ocean front areas. High wind areas present a unique problem. Strong winds shred pinnate and fan leaves alike. The solution is to use species that have stronger leaves or leaflets. *Brahea*, *Washingtonia*, *Chamaerops*, and *Butia* do well in strong wind, whereas *Pritchardia*, *Roystonea*, *Licuala* and *Chamaedorea* do poorly. Strong winds with concomitant dry conditions commonly seen in southern California can desiccate many delicate species. Microenvironments offering more moisture can be created by mulching, frequent spraying of the foliage with water, overhead misting devices on timers, and overhead canopy formation to offer shade, trap humidity, and provide protection from wind.